National Institute of Environmental Health Sciences

Zoonotic infections in Alaska: Disease prevalence, potential impact of climate change and recommended actions for earlier disease detection, research, prevention and control

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Abstract:

Over the last 60 years, Alaska's mean annual temperature has increased by 1.6 degrees C, more than twice the rate of the rest of the United States. As a result, climate change impacts are more pronounced here than in other regions of the United States. Warmer temperatures may allow some infected host animals to survive winters in larger numbers, increase their population and expand their range of habitation thus increasing the opportunity for transmission of infection to humans. Subsistence hunting and gathering activities may place rural residents of Alaska at a greater risk of acquiring zoonotic infections than urban residents. Known zoonotic diseases that occur in Alaska include brucellosis, toxoplasmosis, trichinellosis, giardiasis/cryptosporidiosis, echinococcosis, rabies and tularemia. Actions for early disease detection, research and prevention and control include: (1) determining baseline levels of infection and disease in both humans and host animals; (2) conducting more research to understand the ecology of infection in the Arctic environment; (3) improving active and passive surveillance systems for infection and disease in humans and animals; (4) improving outreach, education and communication on climate-sensitive infectious diseases at the community, health and animal care provider levels; and (5) improving coordination between public health and animal health agencies, universities and tribal health organisations.

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Resource Description

Communication: ☑

resource focus on research or methods on how to communicate or frame issues on climate change; surveys of attitudes, knowledge, beliefs about climate change

A focus of content

Communication Audience: ☑

audience to whom the resource is directed

Health Professional, Public

Other Communication Audience: At risk sub populations (hunters; trappers; subsistence users; wildlife biologists; livestock farmers; pet owners)

Exposure : ☑

weather or climate related pathway by which climate change affects health

Temperature

Temperature: Fluctuations

Geographic Feature:

resource focuses on specific type of geography

Arctic

Geographic Location:

resource focuses on specific location

United States

Health Impact:

specification of health effect or disease related to climate change exposure

Infectious Disease

Infectious Disease: Foodborne/Waterborne Disease, Zoonotic Disease

Foodborne/Waterborne Disease: Cryptosporidiosis, Giardiasis

Zoonotic Disease: Brucellosis, Rabies, Tularemia, Other Zoonotic Disease

Zoonotic Disease (other): Toxoplasmosis; Trichinellosis; Echinococcosis

Mitigation/Adaptation:

mitigation or adaptation strategy is a focus of resource

Adaptation

Resource Type:

format or standard characteristic of resource

Review

Resilience:

capacity of an individual, community, or institution to dynamically and effectively respond or adapt to shifting climate impact circumstances while continuing to function

A focus of content

Timescale:

time period studied

Time Scale Unspecified

Vulnerability/Impact Assessment:

resource focus on process of identifying, quantifying, and prioritizing vulnerabilities in a system

Climate Change and Human Health Literature Portal

A focus of content